

Notice of Allowability

Application No.

10/697,626

Examiner

Devona E. Faulk

Applicant(s)

STANLEY, GERALD R.

Art Unit

2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/16/2007.
2. ☒ The allowed claim(s) is/are 1-7,10-18,21-26,28,29,31,32 and 35-52.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 5/16/2007 have been fully considered but they are not persuasive. With regards to the amended claim language, the examiner asserts that the relationship between variations in frequency response and impedance is known in the art and that it would have been obvious to desire to minimize variations in frequency response.
2. The applicant agreed to an examiner's amendment to place the claims in allowable form.
3. Claims 8-9,19-20,27,30,33-34,36 are cancelled.

EXAMINER'S AMENDMENT

4. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Sanders N. Hillis on 8/4/2007.

The claims are to be amended as follows:

Claim 1, line 3: delete " having an input with an input impedance, wherein the driver circuit comprises" and insert in its place - - comprising - - ..

Claim 1, line 5: after "driver", insert - - wherein a first filter impedance of the first passive filter is substantially matched to a first cold impedance of the first speaker driver, and a second filter impedance of the second passive filter is substantially matched to a second cold impedance of the second speaker driver - - .

Claim 1, line 8: after " 400 percent of", delete "the" and insert - - a combined - - .

Claim 1, line 9: delete "driver circuit" and insert in its place - - first filter impedance, the first cold impedance, the second filter impedance, and the second cold impedance - - .

Claim 6, line 1: after "first", delete "passive".

Claim 6, line 1: after "filter", delete "has" and insert - - impedance is - - .

Claim 6, line 2: after "termination impedance", delete " , the first speaker driver has a cold impedance, and the output characteristic termination impedance of the first passive filter is between about 25 percent and about 400 percent of the cold impedance of the first speaker driver".

Claim 7, line 1: after "second", delete "passive".

Claim 7, line 2: after "filter", delete "has" and insert - - impedance is - - .

Claim 7, line 2: after "termination impedance", delete " , the second speaker driver has a cold impedance, and the output characteristic termination impedance of the second passive filter is between about 25 percent and about 400 percent of the cold impedance of the second speaker driver".

Claim 10, line 2: delete " speaker driver has a " .

Claim 10, line 2: after "impedance" delete "of" and insert in its place - - is - - .

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Claim 10, line 2: after "first", delete "passive".

Claim 10, line 2: after "filter" delete "has" and insert in its place - - impedance is -

Claim 11, line 2: delete " speaker driver has a ".

Claim 11, line 2: after "impedance" delete "of" and insert in its place - - is - -.

Claim 11, line 2: after "second", delete "passive".

Claim 11, line 2: after "filter" delete "has" and insert in its place - - impedance is

Claim 12, line 2: delete " speaker driver has a ".

Claim 12, line 2: after "impedance" delete "of" and insert in its place - - is - -.

Claim 12, line 2: after "first", delete "passive".

Claim 12, line 2: after "filter" delete "has" and insert in its place - - impedance is

Claim 13, line 2: delete " speaker driver has a ".

Claim 13, line 2: after "impedance" delete "of" and insert in its place - - is - -.

Claim 13, line 2: after "second", delete "passive".

Claim 13, line 2: after "filter" delete "has" and insert in its place - - impedance is

Claim 15, line 6: after "input" delete "and".

Claim 15, line 6: after "output" insert - - , and a first filter impedance that is
substantially matched to the first cold impedance - - .

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Claim 15, line 7: after "input" delete "and".

Claim 15, line 6: after "output" insert - - , and a second filter impedance that is substantially matched to the second cold impedance - - .

Claim 15, line 9: after "impedance", insert - - comprising the first cold impedance and the first filter impedance - - .

Claim 15, line 11: after "impedance", insert - - comprising the second cold impedance and the second filter impedance - - .

Claim 15, line 15: after "impedance", insert - - comprising the first combined cold impedance and the second cold impedance - - .

Claim 26, line 7: after "output", insert - - , the first filter means comprising a first filter impedance - - .

Claim 26, line 9: after "output", insert - - , the second filter means comprising a second filter impedance - - .

Claim 26, line 11: after "impedance", insert - - that is substantially equal to the first filter impedance - - .

Claim 26, line 13: after "driver", insert - - has a second cold impedance that is substantially equal to the second filter impedance and - - .

Claim 26, line 16: after " 400 percent of", insert - - a combined impedance of - - .

Claim 26, line 16: after "impedance", insert - - , the second cold impedance, the first filter impedance and the second filter impedance - - .

Claim 29, line 1: after "filter", delete "means has" and insert - - impedance and the second filter impedance are each - - .

Claim 29, line 2: after "impedance", delete " ,the first speaker driver has a cold impedance and the output characteristic termination impedance of the first filter means is between about 25 percent and about 400 percent of the cold impedance of the first speaker driver".

Claim 31, line 3: after "impedance", insert - - , the input impedance comprising a combination of a first cold impedance of a first speaker driver, a first filter impedance of a first filter coupled to the first speaker driver, a second cold impedance of a second speaker driver, and a second filter impedance of a second filter coupled to the second speaker driver, wherein the first filter impedance is substantially equal to the first cold impedance, and the second filter impedance is substantially equal to the second cold impedance - - .

Claim 32, line 4: after "range", insert - - , the input impedance comprising a combination of a first cold impedance of a first speaker driver, a first filter impedance of a first filter coupled to the first speaker driver, a second cold impedance of a second speaker driver, and a second filter impedance of a second filter coupled to the second speaker driver, wherein the first filter impedance is substantially equal to the first cold impedance, and the second filter impedance is substantially equal to the second cold impedance - - .

Claim 51, line 3: after "heating of", delete "a loudspeaker", insert - - the first speaker driver and the second speaker - - .

5. **Claims 1-7,10-18,21-26,28,29,31,32,35-52** are allowed.

6. The following is an examiner's statement of reasons for allowance:

Regarding **claims 1,15,26,31 and 32** prior art Kim (US 5,598,480) discloses a loudspeaker system for receiving an incoming electrical signal and transmitting an acoustical signal, the loudspeaker system comprising: a driver circuit having an input with an input impedance, wherein the driver circuit comprises a first passive filter (36) coupled to a first speaker driver (30) and a second passive filter (38) coupled to a second speaker driver (32) (See Figure 1); a power amplifier (10) having an input and an output with an output (Figure 1); wherein the input of the power amplifier receives the incoming electrical signal, and the output of the power amplifier is coupled to the input of the driver circuit (Figure 1). Prior art Alexander (US 5,097,223) discloses a power amplifier that comprises a current feedback audio power amplifier (See abstract; Figure 2) including a current monitor operable to sense an output current at the output (R_{FB}), and a feedback circuit coupled with the current monitor (Figure 1), the feedback circuit operable to generate a feedback signal to create the desired output impedance. Prior art Iredale (US 4,670,709) discloses an audio system wherein the power amplifier (5) approximately matches the input impedance of a speaker (impedance matching; column 2, lines 30-33). Prior art Ayers (US 4,335,274) discloses a sound reproduction system. Prior art Gary (US 5,533,135) discloses a crossover system. Prior art Alexander (US 6,381,334) discloses a series-configured crossover network for electro-acoustic loudspeakers.

Regarding claim 1, the prior art or combination thereof fails to disclose or make obvious the invention as a whole and wherein a first filter impedance of the first passive filter is

substantially matched to a first cold impedance of the first speaker driver, and a second filter impedance of the second passive filter is substantially matched to a second cold impedance of the second speaker driver; and a power amplifier having an input and an output, wherein the power amplifier includes a current-feedback amplifier configured to create a desired impedance at the output that is between about 25 percent and about 400 percent of a combined input impedance of the first filter impedance, the first cold impedance, the second filter impedance, and the second cold impedance.

Regarding claim 15, the prior art or combination thereof fails to disclose or make obvious the invention as a whole and a first filter impedance that is substantially matched to the first cold impedance, a second filter impedance that is substantially matched to the second cold impedance, a first combined cold-impedance comprising the first cold impedance and the first filter impedance and a second combined cold impedance comprising the second cold impedance and the second filter impedance.

Regarding claim 26, the prior art or combination thereof fails to disclose or make obvious the invention as a whole and a first filter impedance that is substantially matched to the first cold impedance, a second filter impedance that is substantially matched to the second cold impedance, a combined cold impedance comprising the first cold impedance, the first filter impedance, a second cold impedance and the second filter impedance.

Regarding claim 31, the prior art or combination thereof fails to disclose or make obvious the invention as a whole and the input impedance comprising a combination of a first cold impedance of a first speaker driver, a first filter impedance of a first filter

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coupled to the first speaker driver, a second cold impedance of a second speaker driver, and a second filter impedance of a second filter coupled to the second speaker driver, wherein the first filter impedance is substantially equal to the first cold impedance, and the second filter impedance is substantially equal to the second cold impedance.

Regarding claim 32, the prior art or combination thereof fails to disclose or make obvious the invention as a whole and the input impedance comprising a combination of a first cold impedance of a first speaker driver, a first filter impedance of a first filter coupled to the first speaker driver, a second cold impedance of a second speaker driver, and a second filter impedance of a second filter coupled to the second speaker driver, wherein the first filter impedance is substantially equal to the first cold impedance, and the second filter impedance is substantially equal to the second cold impedance.

Therefore, the prior art or combination thereof fails to disclose or make obvious a loudspeaker system, a method of constructing a loudspeaker system and a method of operating a loudspeaker system as claimed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Devona E. Faulk whose telephone number is 571-272-7515. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DEF


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